IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of	)	
	)	Group Art Unit: 3765
Swatee N. SURVE	)	
	)	Examiner: Robert J. Muromoto, Jr.
Serial Number 10/077,548	)	
	)	Attorney Reference: 005127.00138
Filed: February 14, 2002	)	
	)	
For: DEPOSITION OF ELECTRONIC CIRCUITS ON FIBERS AND OTHER MATERIALS	)	

CORRECTED SECOND SUPPLEMENTAL APPEAL BRIEF

Commissioner for Patents
U.S. Patent and Trademark Office
Alexandria, VA 22313

Sir:

Appellant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the Examiner on June 2, 2004, finally rejecting claims 1-25 in the above-captioned patent application, the decision of the Examiner on May 3, 2005, again rejecting claims 1-25 in the above-captioned patent application, and the decision of the Examiner on March 2, 2006, yet again rejecting claims 1-25 in the above-captioned patent application.

(1) Real Party In Interest

The real party in interest is Nike Inc., a U.S. corporation having a place of business at One Bowerman Drive, Beaverton, Oregon.

(2) Related Appeals and Interferences

Appellant and his legal representatives are unaware of any appeals or interferences related to the subject appeal.

(3) Status of Claims

Claims 1-25 (reproduced for reference in the Claims Appendix) are pending in the application, with claims 1 and 12 being independent claims. In a first Office Action dated December 22, 2003 and a final Office Action dated June 2, 2004, the Examiner rejected each of claims 1-25. Appellant appealed the rejection of these claims on October 4, 2004, and filed an Appeal Brief in support of this appeal on February 4, 2005. In response, the Examiner withdrew the finality of the Office Action dated June 2, 2004, and issued a new Office Action on May 3, 2005, again rejecting each of claims 1-25. Applicant submitted a supplemental Appeal Brief on August 3, 2005, addressing the new rejections set forth in the Office Action dated May 3, 2005. In response, the Examiner issued yet another Office Action on March 2, 2006, to which this second supplemental Appeal Brief responds.

(4) Status of Amendments

No amendments have been made to the claims during the pendency of this application.

(5) Summary of Invention

The following summary of the claimed subject matter identifies examples of portions of the original specification and drawings at which examples of the various claim features are described or illustrated. The various claim features and the claimed subject matter may be

described, discussed, and/or illustrated at other portions of the specification and/or in additional drawings not expressly identified in the summary that follows.

A summary of the claimed subject matter for each independent claim involved in this appeal follows:

Claim 1

Claim 1 relates to a method of forming an article of wear by forming at least one electronic component 107 on a fiber 103A, interlacing the fiber 103A with other fibers 103, 105 to form a piece of fabric 101, and then forming an article of wear with the fabric. (See, e.g., page 4, paragraph 16 to page 8, paragraph 27, and page 9, paragraph 9, and Figs. 1-3B.) As described in the specification, the electronic component 107 may be formed on the fiber 103A by spraying stock materials onto the fiber through a laser, so as to deposit the component on the fiber. (*Id.,*, and particularly page 5, paragraph 19 to page 6, paragraph 20, and Figs 1 and 2.) With some embodiments, a substrate 203 is first formed on the fiber before the electronic component. (See, e.g., page 4, paragraph 16 to page 5, paragraph 17, and Fig. 2.) Some embodiments alternately or additionally form a protective layer 227 over the electronic component 107. (See, e.g., page 7, paragraph 25 to page 8, paragraph 26, and Fig. 2.)

Claim 12

Claim 12 relates to a piece of clothing material, such as a piece of leather 503. At least one electrical component, such as an antenna element 501, formed over a surface of the piece of clothing material. (See, e.g., page 9, paragraph 30.) The piece of material can then be used in an article of wear, such as a jacket, a hat brim, or the upper portion of an athletic shoe.

(6) Grounds Of Rejection To Be Reviewed[1]

The following grounds of rejection are presented to the Board of Patent Appeals and Interferences for consideration in this appeal:

(a) Claims 1, 3-22, 24 and 25 have been rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,210,771 to Post et al.

(b) Claims 2 and 3 have been rejected under 35 U.S.C. §103 over U.S. Patent No. 6,210,711 to Post et al. patent in view of U.S. Patent No. 6,251,488 to Miller et al.

(c) Claim 23 has been rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,555,490 to Carroll.

(7) Arguments

Rejection Of Claims 1, 4-12, 24 and 25

Claims 1, 3-22, 24 and 25 have been rejected under 35 U.S.C. §102(b) over U.S. Patent No. 6,210,771 to Post et al. Appellant respectfully traverses this rejection, and asks for its reconsideration.

Claims 1 and 3-11 recite a method of forming an article of wear that includes forming at least one electronic component on a fiber. Claims 12-22, 24 and 25 then recite an article of wear including at least one electrical component formed over a surface of a piece of clothing material. Appellant respectfully submits that these recited features of the invention are not taught or suggested by the Post et al. patent.

In making this rejection, the Examiner states that:

[1] In the Office Action of June 2, 2004, the Examiner objected to the Abstract (1) for using the phrase "are disclosed" and (2) for reciting purported merits of the invention. This objection was not repeated in the Office Action of May 3, 2005, or in the Office Action of March 2, 2006. Accordingly, Appellant has concluded that this objection was withdrawn.

> Post discloses the *fabrication of electronic devices and circuits*, and in particular to the integration of such devices and circuit into textiles (fabrics, clothing material). (See Office Action of March 2, page 2, lines 22-23.)

Appellant does not dispute this assertion, or the Examiner's apparent understanding of the disclosure in the Post et al. patent. Appellant submits, however, that no reasonable interpretation of either the Post et al. patent or the express language of claims 1 and 3-22, 24 and 25 can support the conclusion that this patent teaches or suggests the features of the invention recited in these claims.

The Post et al. patent describes two techniques for creating electrical circuits using fibers. In the first technique:

> …the [Post et al.] invention achieves selective, anisotropic electrical conductivity by utilizing conductive fibers running along one weave direction and non-conductive fibers running along the opposite direction. The conductive fibers serve as electrical conduits capable of carrying data signals and/or power, and may be connected, e.g., to electrical components soldered directly onto the fabric. (See the Post et al. patent at column 2, lines 12-20.)

With the second technique:

> …the [Post et al.] invention comprises fabrication of circuit traces and passive electrical components into textiles using threads having selected electrical properties…For example, capacitors can be formed using extended parallel lanes of conductive material separated by non-conductive fabric that serves as a dielectric, or by spaced-apart patches of conductive material. Inductors and transformers can be formed from one or more spiral lengths of conductive material; in the case of a transformer, for example, the spirals may be concentrically disposed and magnetically coupled. (*Id.*, column 3, lines 9-23.)

Thus, the Post et al. discloses four structures that might possibly be interpreted as electronic (or electrical) components: (1) the fibers themselves, (2) electrical components formed by multiple fibers working together, (3) the separate electrical components attached to the fibers, and (4) the circuit formed by the combination of the fibers with the separate electrical components. Each of these structures is patentably distinguishable from the claimed invention.

For example, if the Examiner is interpreting a conductive fiber of the type disclosed by the Post et al. patent to itself be an electronic component, then this fiber cannot also be considered an electronic component formed on a fiber as recited in claims 1 and 4-11. That is, a fiber cannot be formed on itself. Accordingly, this interpretation cannot be stretched to anticipate the express language of claims 1 and 4-11.

Similarly, an electronic component formed by multiple fibers of the type disclosed in the Post et al. patent (e.g., a capacitor or conductor) also cannot be construed as an electronic component formed on a fiber. Instead, it can at most be characterized as a single electronic component incorporating a fiber, or as a group of electronic components positioned adjacent to each other.

With regard to the separate electrical components disclosed by Post et al. patent, this patent does not teach or suggest forming any of these separate components on a fiber as recited in claims 1 and 4-11. Instead, the Post et al. patent inherently teaches that these electrical components are formed elsewhere, and then subsequently welded or otherwise attached to a fiber.

Finally, with regard to a circuit created by attaching a separate electrical component to a fiber taught by the Post et al. patent (which appears to be the interpretation of the Post et al. patent relied upon by the Examiner), Appellant likewise submits that this combination cannot be considered an electronic component formed on a fiber, as expressly recited in the claims. At best, it can only be construed as an electronic component that incorporates a fiber. More particularly, Appellant respectfully points out that the separate circuit component can only reasonably be characterized as a separately formed electronic component placed on a fiber, or as a part forming a larger circuit together with the fiber on which it is placed, but not both simultaneously as the

Examiner has done. While the Examiner has dismissed Appellant's earlier arguments as "semantics," (see Advisory Action) Appellant is simply trying to point out that the Examiner's reading of the claims onto the disclosure of the Post et al. is not only well beyond the broadest *reasonable* interpretation of these claims, but is in fact internally inconsistent.

In the final Office Action, the Examiner asserted that

> A direct quotation from Post reads 'The fibers of the fabric are used to create electrical circuits." Electrical circuits are certain 'electronic components' under any definition.

Appellants do not dispute this assertion the Examiner, but it does highlight the Examiner's erroneous reading of the claims onto the Post et al. patent. Simply put, claims 1 and 4-11 do not broadly recite using fibers "to create" an electrical component, as suggested by the Examiner. These claims instead more specifically recite forming at least one electronic component on a fiber, a feature that is not taught or suggested by the Post et al. patent. The Post et al. patent teaches forming electronic components that include a fiber. A fiber can either be part of an electronic component (as taught by the Post et al. patent), or the base on which an electronic component is formed (as recited in the claims). A fiber cannot, however, simultaneously be both as argued by the Examiner.

Similarly, Appellant respectfully submits that the Post et al. patent does not teach or suggest at least one electrical component formed over a surface of clothing material. Again, if the Examiner interprets a conductive fiber of the type discussed in the Post et al. patent to itself be an electrical component, then this fiber cannot also be considered an electrical component formed over a surface of clothing material as recited in claim 12, 14-22, 24 and 25. Rather, the fiber is at most an electrical component that forms a part of a clothing material. Similarly, an electrical component formed by multiple fibers cannot be considered an electrical component

formed over a surface of clothing material, but can only be considered an electrical component that forms a part of a clothing material.

With regard to the separate electrical components (e.g., capacitors) disclosed by Post et al., the Post et al. patent inherently teaches that these electrical components are formed elsewhere, and then subsequently welded or otherwise attached to a fiber, as previously noted. Thus, these separate components are not formed over a surface of clothing material as recited in claims 12, 14-22, 24, and 25. Appellant likewise submits that the combination of a separate electrical component attached to a fiber taught by Post et al. cannot be considered an electrical component formed over a surface of clothing material. Again, Appellant respectfully submits that the separate circuit component can be characterized as an electronic component attached to a clothing surface, or as a part forming a larger circuit in conjunction with the clothing surface, but not as both simultaneously.

Regarding claims 6, 8, 16 and 18, each of these claims recites a shield layer. The Examiner has rejected these claims based upon the non-conductive coating disclosed in the Post et al. patent. Appellant respectfully points out, however, that electronic shielding typically is formed of conductive material. The Examiner did not address this discrepancy in either the final Office Action of June 2, 2004, or the more recent Office Action of May 3, 2005.

Accordingly, Appellant respectfully submits that the Post et al. patent does not teach or suggest the features of the invention recited in claims 1, 3-12, 14-22, 24 and 25. Appellant therefore again asks that the rejection of these claims be withdrawn.

Rejection Of Claims 2 And 3

Claims 2 and 3 were newly rejected under 35 U.S.C. §103 over the Post et al. patent in view of U.S. Patent No. 6,251,488 to Miller et al.. Appellant respectfully traverses this rejection, and courteously asks for its reconsideration as well.

In making this rejection, the Examiner stated:

> This citation [Appellant's specification at page 8, paragraph 28, and at page 9, lines 11-15] admits the obviousness of using the techniques of Miller or any other suitable process for depositing electronic components and a substrate onto fibers as recited in claims 2, 3, and 13.
>
> Therefore it would have been obvious to one of ordinary skill in the art *at the time of invention* to modify the Post article to use a spray deposition process as taught by Miller or any other suitable process for depositing electronic components rather than soldering, and depositing substrate materials onto fibers to be woven into fabric articles. (Office Action of March 2, 2006, page 6, lines 16-22, *emphasis added*.)

Appellant points out that this rejection is the very definition of impermissible hindsight. The Examiner is expressly using the description of the invention in Appellant's specification to argue that an earlier combination of references would have been obvious. The reasoning provided by the Examiner in the first paragraph above clearly does not support the Examiner's conclusion emphasized in the following paragraph.

In fact, nothing in the Post et al. patent teaches or suggests forming an electrical component by spraying materials at a fiber through a laser. The Miller et al. patent, on the other hand, does not disclose forming an electronic component on either a fiber or on the surface of a piece of clothing material. Instead, the Miller et al. patent states:

> Substrates suitable for use in the practice of the present invention include those *typically employed in the integrated circuit field*, such as metals, plastics (i.e., polymer resins, thermosets, and the like), glass, composites, ceramics, and the like. (See the Miller et al. patent, column 5, lines 34-38, *emphasis added*.)

Thus, there is simply nothing in either the Post et al. patent or the Miller et al. patent that would suggest using the techniques of the Miller et al. patent to form a circuit component on a

fiber as asserted by the Examiner. Moreover, the Post et al. patent does not remedy this omission of the Miller et al. patent. Appellant therefore respectfully submits that the combination of the Post et al. and Miller et al. patents is improper, and asks that the rejection of claims 2 and 3 be withdrawn.

Rejection Of Claim 23

Lastly, the Examiner rejected claim 23 under 35 U.S.C. §102(b) over U.S. Patent No. 5,555,490 to Carroll. Appellant respectfully traverses this rejection, and asks for its reconsideration. Like the Post et al. and Miller et al. patents, the Carroll patent does not teach or suggest an electrical component formed over a surface of a piece of clothing material. Instead, the Carroll patent discloses a garment configured to hold a previously formed electronic device. For example, in column 4, lines 3-11, the Carroll patent states:

> The channels 32 present a characteristic width of sufficient size to encase a flat flexible substrate, such as ribbon cable common in the computer industry…It will be understood that the channels 32 may be defined by a plurality of layers 30 or may be defined by a plurality of securing loops.

Thus, the Carroll patent would seem to suggest that the channels 32 be sized to receive a flexible connector, such as a ribbon cable, that was formed previously. Certainly nothing in the Carroll patent would teach or suggest forming the connector (or any other electrical component) directly over the surface of the channels themselves. Appellant therefore asks that the rejection of claim 23 be withdrawn as well.

Summary

In summary, Applicant notes that the Examiner appears to have predicated the rejection of all of the pending claims based upon isolated and unreasonably broad interpretations of individual terms in the language of the claims, e.g., "on," "forming," and "formed," rather than

upon a consideration of the claim as a whole. For example, in the Office Action of March 2, 2006, the Examiner stated:

> It appears applicant is assigning more to the term "forming" than is the broadest reasonable interpretation of the term…The term "form" is extremely broad and present almost no limiting process steps or structure to the claimed invention. (See Office Action of March 2, 2006, page 8, lines 7-12).

While the terms "forming" and "formed" are broad, they are not completely without meaning, as the Examiner has suggested with the outstanding rejections. For example, Applicant points out that a customer in a restaurant may raise a glass from a table to drink, and then place the glass back down on the table. Applicant submits, however, that the Examiner would not assert that the customer is "forming" a glass on the table each time he or she returned the glass to the table surface. Further, even if the table was sticky, and the glass adhered to the table surface when it was placed down, Applicant suspects that the Examiner still would not characterize the customer as "forming" a glass on the table. This is *exactly* the same argument that the Examiner seems to be using to reject each of the pending claims. Accordingly, Applicant respectfully submits that it is the Examiner who is unreasonably interpreting the terms "on," "forming," and "formed." Accordingly, Applicant again urges that each of the outstanding rejections is improper, and asks that they be withdrawn.

(8) Conclusion

The rejections submitted in the final Office Action of May 3, 2005, should be reversed for at least the reasons recited above. Allowance of claims 1-25 is, therefore, respectfully requested.

In accordance with 37 C.F.R. §41.37, Appellants submit this Appeal Brief to the Board of Patent Appeals and Interferences. A Notice of Appeal was timely filed on October 4, 2004, and

the fee for filing an Appeal Brief was previously submitted prior to the Examiner issuing the most recent Office Action of May 3, 2005. In addition, a Second Request For Reinstatement Of Appeal is being concurrently filed with this Appeal Brief, together with a Petition for a two month extension of time. Accordingly, it is believed that no additional fees are due in connection with this Appeal Brief. Should additional fees be deemed necessary, however, such fees are hereby requested and the Commissioner is authorized to charge deposit account number 19-0733 for the payment of the requisite fee. Favorable action with respect to this appeal is courteously requested.

Respectfully submitted,

s/Thomas L. Evans/s

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Claims Appendix

1. A method of forming an article of wear, comprising:
forming at least one electronic component on a fiber;
interlacing the fiber with other fibers to form a piece of fabric; and
forming an article of wear with the fabric.

2. The method of forming an article of wear recited in claim 1, wherein the at least one electronic component is deposited on the fiber by spraying stock materials at the fiber through a laser.

3. The method of forming an article of wear recited in claim 1, further comprising:
forming a substrate over a surface of the fiber,
wherein the at least one electronic component is formed over the substrate.

4. The method of forming an article of wear recited in claim 1, further comprising:
forming a protective layer over the at least one electronic component.

5. The method of forming an article of wear recited in claim 4, wherein the protective layer is a layer of insulative material.

6. The method of forming an article of wear recited in claim 4, wherein the protective layer is a layer of shield material.

7. The method of forming an article of wear recited in claim 1, further comprising:
forming an insulative layer over the at least one electronic component.

8. The method of forming an article of wear recited in claim 1, further comprising:
forming a shield layer over the at least one electronic component.

9. The method of forming an article of wear recited in claim 1, wherein the at least one electronic component is a transistor.

10. The method of forming an article of wear recited in claim 1, wherein the at least one electronic element is an antenna element.

11. The method of forming an article of wear recited in claim 1, wherein the at least one electronic element is a capacitor.

12. An article of wear, comprising:
a piece of clothing material; and
at least one electrical component formed over a surface of the piece of clothing material.

13. The article of wear recited in claim 12, further comprising:
a substrate formed on the surface of the piece of clothing material;
wherein the at least one electrical component is formed over the substrate.

14. The article of wear recited in claim 12, further comprising:
a protective layer formed over the at least one electronic component.

15. The article of wear recited in claim 14, wherein the protective layer is a layer of insulative material.

16. The article of wear recited in claim 14, wherein the protective layer is a layer of shield material.

17. The article of wear recited in claim 12, further comprising:
an insulative layer formed over the at least one electronic component.

18. The article of wear recited in claim 12, further comprising:
a shield layer formed over the at least one electronic component.

19. The article of wear recited in claim 12, wherein the at least one electronic component is a transistor.

20. The article of wear recited in claim 12, wherein the at least one electronic element is an antenna element.

21. The article of wear recited in claim 12, wherein the at least one electronic element is a capacitor.

22. The article of wear recited in claim 12, wherein

the clothing material is a fabric woven from a plurality of fibers, and

the at least one electrical component is formed over a surface of one of the plurality of fibers.

23. The article of wear recited in claim 12, wherein the clothing material is a natural or synthetic leather.

24. The article of wear recited in claim 12, wherein the clothing material is a plastic.

25. The article of wear recited in claim 12, wherein the clothing material is a composite foam.

Evidence Appendix

Not applicable.

Decisions Of Related Appeals And Interferences Appendix

Not applicable.